

WHAT IS CLAIMED IS:

1. An image sensor, comprising:
  - a plurality of photoelectric converting elements that convert an optical signal to an electric signal, each of the photoelectric converting elements being provided with an electric charge output port;
  - a common signal line that is connected to the electric charge output port of each of the photoelectric converting elements;
  - a group of channel selection switches that are disposed between the common signal line and each of the photoelectric converting elements and that turns on and off between the electric charge output port and the common signal line;
  - a resolution switching device that outputs a resolution switching signal according to a resolution to be set based on an instruction of a resolution setting; and
  - a control signal generator that determines an ON-OFF control pattern of the group of channel selection switches, based on the resolution switching signal, and supplies a drive signal to the group of the channel selection switches, based on the determined pattern.
2. The image sensor according to claim 1, wherein a first signal for setting a period for designating the resolution, a second signal for setting a timing for designating the resolution, and a third signal for designating the resolution are externally input to the resolution switching device, and the resolution switching signal is output according to an on-off pattern of the third signal at a timing of a rising or falling edge of the second signal when the first signal is on.
3. The image sensor according to claim 1, wherein the control signal generator is a shift register group including flip-flops provided in association with the group of channel selection switches and a selector switch that switches operation timings of the flip-flops, and the ON-OFF control pattern of the group of channel selection switches is determined by setting the selector switch based on the resolution switching signal output from the resolution switching device.
4. The image sensor according to claim 2, wherein an on and off of the third signal at the timing of the rising or falling edge of the second signal is expressed as binary data and the resolution switching signal is output based on the binary data.
5. The image sensor according to claim 2, wherein the first signal, the second signal, and the third signal are any of a control signal for setting the resolution, a start signal for starting the shift register group, and a clock pulse signal that are input from an external device.

6. The image sensor according to claim 5, wherein when one of the second signal and the third signal is the start signal, the start signal does not start the shift register group for a predetermined period of time from the rising or falling edge of the first signal.

7. The image sensor according to claim 5, wherein when the first signal is the start signal, an on-off control for the shift register group is started based on the falling edge of the first signal.

8. The image sensor according to claim 5, wherein the second signal is the clock pulse signal.

9. The image sensor according to claim 1, wherein the resolution switching signal is output for every line of an image to be read.

10. The image sensor according to claim 1, wherein the resolution switching signal is output for every page of an image to be read.

11. The image sensor according to claim 3, wherein when a resolution other than a maximum resolution is set, the shift register group turns on at least two of the plurality of the channel selection switches on at substantially the same time, according to the set resolution.

12. The image sensor according to claim 1, wherein the image sensor outputs a signal including a resolution signal indicative of the resolution.

13. The image sensor according to claim 5, wherein at least four resolutions are selectable based on the three signals.

14. The image sensor according to claim 1, wherein when a resolution signal indicative of a resolution indicates an inappropriate resolution, image reading is stopped.

15. An image reading device, comprising:  
a supply portion that supplies sheets;  
a reading head that reads the supplied sheets, wherein the reading head includes the image sensor of claim 1; and  
a discharge portion that receives the sheet that has been read by the reading device.

16. A method of reading an image with an image sensor comprising a plurality of photoelectric converting elements that convert an optical signal to an electric signal, each of the photoelectric converting elements being provided with an electric charge output port, a common signal line that is connected to the electric charge output port of each of the photoelectric converting elements, a group of channel selection switches that are disposed between the common signal line and each of the photoelectric converting elements and that

turns on and off between the electric charge output port and the common signal line, comprising:

outputting a resolution switching signal according to a resolution to be set based on an instruction of a resolution setting;

determining an ON-OFF control pattern of the group of channel selection switches, based on the resolution switching signal; and

supplying a drive signal to the group of channel selection switches, based on the determined pattern.

17. The method of claim 16, wherein a first signal for setting a period for designating the resolution, a second signal for setting a timing for designating the resolution, and a third signal for designating the resolution are externally input and the resolution switching signal is output according to an on-off pattern of the third signal at a timing of a rising or falling edge of the second signal when the first signal is on.

18. The method of claim 17, wherein the first signal, the second signal, and the third signal are any of a control signal for setting the resolution, a start signal for starting the shift register group, and a clock pulse signal that are input from an external device.

19. The method of claim 16, wherein the resolution switching signal is output with a shift register group including flip-flops provided in association with the group of channel selection switches and a selector switch that switches operation timings of the flip-flops, and the ON-OFF control pattern of the group of channel selection switches is determined by setting the selector switch based on the output resolution switching signal.

20. The method of claim 19, wherein when a resolution other than a maximum resolution is set, the shift register group turns on at least two of the plurality of the channel selection switches on at substantially the same time, according to the set resolution.